US005392735A

United States Patent [19]

Xitco, Jr. et al.

[11] **Patent Number:** **5,392,735**

[45] **Date of Patent:** **Feb. 28, 1995**

[54] **MARINE MAMMAL COMMUNICATION DEVICE**

[75] Inventors: **Mark J. Xitco, Jr.**, Kissimmee; **John D. Gory**, Orlando, both of Fla.; **Kerry M. Perkins**, Simi Valley, Calif.; **Marshall M. Monroe**, Glendale, Calif.; **William G. Redmann**, Simi Valley, Calif.

[73] Assignee: **The Walt Disney Company**, Burbank, Calif.

[21] Appl. No.: **968,817**

[22] Filed: **Oct. 30, 1992**

[51] Int. Cl.6 .... A01K 15/02
[52] U.S. Cl. 119/712; 119/905
[58] Field of Search 119/174, 201, 702, 712, 119/719, 905; 434/231, 232, 322; 341/23, 27

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,372,789	3/1968	Thiele et al. .
4,245,587	1/1981	Cooper et al. 119/712
4,315,482	2/1982	Cooper et al. 119/712
4,465,465	8/1984	Nelson 434/112
4,713,535	12/1987	Rhoades .
4,774,501	9/1988	Ikeya 341/23
5,260,512	11/1993	Chomette et al. .... 341/22 X

FOREIGN PATENT DOCUMENTS

2078424	1/1982	United Kingdom 434/231

OTHER PUBLICATIONS

D. Reiss and B. McCowan, "Spontaneous and Productive Use of Facsimiles of Computer Generated Whistles By the Bottlenosed Dolphin," *Abstracts–8th Biennial Conference on the Biology of Marine Mammals* (1989).
L. M. Herman, "Receptive Competencies of Language Trained Animals," *Adv. Study Behav.*, 17:1–60 (1987).
L. M. Herman, "The Language of Animal Research . . . " *Psychol. Rec.*, 38:349–362 (1988).
L. M. Herman, "In Which Procrustean Bed Does the Seal Lion Sleep Tonight?" *Psychol. Rec.*, 39:19–49 (1989).

M. J. Xitco, "Echolocation Matching For Shape, Material and Internal Structure," a paper presented at the 18th Annual Conference of the International Marine Animals Trainers Association, Chicago, 1990.

(List continued on next page.)

Primary Examiner—Robert P. Swiatek
Attorney, Agent, or Firm—Haverstock, Medlen & Carroll

[57] **ABSTRACT**

An innovative communication device and learning tool that enables marine mammals, such as dolphins, to communicate with humans and with each other. The communication device includes a keyboard having a plurality of hollow keys. Each key includes a switch which can be activated by the dolphin, and a two- or three-dimensional object which can be distinguished by dolphins from other objects in other keys both visually and through echolocation. A microprocessor based controller can be used to associate audible feedback, such as unique words or phrases, with each key and to generate that word or phrase when the proper key is selected. Thus, a dolphin can select a word or phrase by locating the associated key and by activating the switch for that key to communicate with humans or with another dolphin. Likewise, a human can activate the switch to generate a spoken word or phrase to communicate with a dolphin. A photosensor switch can be advantageously used as a non-contact switch to enable the dolphin to use its rostrum or other body parts to select a key by breaking an optical beam generated across the opening of the key. Thus the dolphin simply swims towards the object in the key to activate the switch by breaking the beam. In addition to controlling the audible feedback when a key is selected, the controller can be used to record a log of events of the session, including the keys selected and the time at which such selections occurred, as well as observer comments.

54 Claims, 7 Drawing Sheets